

IN THE CLAIMS

This listing of claims replaces all prior listings:

1. (Currently Amended) An electrode comprising:

a current collector containing at least one from the group consisting of copper (Cu), nickel (Ni), titanium (Ti), iron (Fe), and chromium (Cr);

an active material layer on said current collector containing at least one of silicon (Si), germanium (Ge) and compounds thereof; and

a thin film layer on the active material layer containing at least one of copper and nickel provided on the active material layer,

wherein,

the active material layer and thin film layer are on either or both sides of the current collector,

at an interface between at least one of said active material layers and said current collector they are alloyed together, and

the thin film layer comprises several layers and the layer in contact with the active material layer is made of a metal material which alloys with silicon or germanium and the other layers are made of one or more metal materials different than that of the layer in contact with the active material layer.

2. (Currently Amended) An electrode comprising:

a current collector containing a metal element which does not form an intermetallic compound with lithium (Li);

an active material layer on said current collector containing at least one of silicon (Si), germanium (Ge) and compounds thereof; and

a thin film layer on the active material layer containing at least one of metal elements and metalloid elements which can make a solid solution with lithium and do not form an intermetallic compound with lithium provided on the active material layer,

wherein,

the active material layer and thin film layer are on either or both sides of the current collector,

at an interface between at least one of said active material layer layers and said current collector they are alloyed together, and

the thin film layer comprises several layers and the layer in contact with the active material layer is made of a metal material which alloys with silicon or germanium and the other layers are made of one or more metal materials different than that of the layer in contact with the active material layer.

3. (Previously Presented) An electrode according to claim 2, wherein the current collector contains a metal element which does not form an intermetallic compound with lithium, and is alloyed with at least one of silicon, germanium and compounds thereof.

4. (Previously Presented) An electrode according to claim 2, wherein the thin film layer contains at least one of metal elements and metalloid elements which can make a solid solution with lithium and do not form an intermetallic compound with lithium, and are alloyed with at least one of silicon, germanium and compounds thereof.

5. (Previously Presented) An electrode according to claim 2, wherein at said interface, material from at least one of said active material layer and said current collector is diffused into the other.

6. (Original) An electrode according to claim 2, wherein the active material layer is alloyed with the thin film layer at least on part of the interface thereof.

7. (Original) An electrode according to claim 2, wherein the active material layer is formed by at least one method of from the group consisting of vapor-phase deposition method, liquid-phase deposition method, and sintering method.

8. (Original) An electrode according to claim 2, wherein the thin film layer is formed by at least one method of from the group consisting of vapor-phase deposition method, liquid-phase deposition method, and sintering method.

9. (Original) An electrode according to claim 2, wherein the current collector contains at least one from the group consisting of copper (Cu), nickel (Ni), titanium (Ti), iron (Fe), and chromium (Cr).

10. (Original) An electrode according to claim 2, wherein the thin film layer contains at least one of copper (Cu) and nickel (Ni).

11. (Original) an electrode according to claim 2, wherein a thickness of the thin film layer is from 50 nm to 1,000 nm.

12. (Currently Amended) A battery comprising:

an electrolyte;

a cathode; and

an anode; having

(a) a current collector containing at least one from the group consisting of copper (Cu), nickel (Ni), titanium (Ti), iron (Fe), and chromium (Cr);

(b) an active material layer on said current conductor containing at least one of silicon (Si), germanium (Ge) and compounds thereof; and

(c) a thin film layer on the active material layer containing at least one of copper and nickel provided on the active material layer,

wherein,

the active material layer and thin film layer are on either or both sides of the current collector,

at an interface between said active material layer and said current collector they are alloyed together, and

the thin film layer comprises several layers and the layer in contact with the active material layer is made of a metal material which alloys with silicon or germanium and the other layers are made of one or more metal materials different than that of the layer in contact with the active material layer.

13. (Currently Amended) A battery comprising:

a cathode;

an anode; and

an electrolyte,

wherein, said anode comprises

(a) a current collector containing a metal element which does not form an intermetallic compound with lithium (Li),

(b) an active material layer on said current collector containing at least one of silicon (Si), germanium (Ge) and compounds thereof, and

(c) a thin film layer on the active material layer containing at least one of metal elements and metalloid elements which can make a solid solution with lithium and do not form an intermetallic compound with lithium provided on the active material layer,

wherein,

the active material layer and thin film layer are on either or both sides of the current collector,

at an interface between said active material layer and said current collector they are alloyed together, and

the thin film layer comprises several layers and the layer in contact with the active material layer is made of a metal material which alloys with silicon or germanium and the other layers are made of one or more metal materials different than that of the layer in contact with the active material layer.

14. (Previously Presented) A battery according to claim 13, wherein the current collector contains a metal element which does not form an intermetallic compound with lithium, and is alloyed with at least one of silicon, germanium and compounds thereof.

15. (Previously Presented) A battery according to claim 13, wherein the thin film layer contains at least one of metal elements and metalloid elements which can make a solid solution with lithium and do not form an intermetallic compound with lithium, and are alloyed with at least one of silicon, germanium and compounds thereof.

16. (Previously Presented) An electrode according to claim 13, wherein at said interface, material from at least one of said active material layer and said current collector is diffused into the other.

17. (Original) A battery according to claim 13, wherein the active material layer is alloyed with the thin film layer at least on part of the interface thereof.

18. (Original) A battery according to claim 13, wherein the active material layer is formed by at least one method from the group consisting of vapor-phase deposition method, liquid-phase deposition method, and sintering method.

19. (Original) A battery according to claim 13, wherein the thin film layer is formed by at least one method from the group consisting of vapor-phase deposition method, liquid-phase deposition method, and sintering method.

20. (Original) A battery according to claim 13, wherein the current collector contains at least one from the group consisting of copper (Cu), nickel (Ni), titanium (Ti), iron (Fe), and chromium (Cr).

21. (Original) A battery according to claim 13, wherein the thin film layer contains at least one of copper (Cu) and nickel (Ni).

22. (Original) A battery according to claim 13, wherein a thickness of the film layer is from 50 nm to 1,000 nm.

23. (Original) A battery according to claim 13, wherein the electrolyte contains a holding body, a solvent, and an electrolyte salt.

24. (Previously Presented) A battery according to claim 13, wherein film exterior members housing the cathode, the anode, and the electrolyte are further provided.

25. (Original) A battery according to claim 13, wherein the cathode contains a lithium-containing metal complex oxide.

26. (Previously Presented) An electrode according to claim 1, wherein at said interface, material from at least one of said active material layer and said current collector is diffused into the other.

27. (Previously Presented) An electrode according to claim 12, wherein at said interface, material from at least one of said active material layer and said current collector is diffused into the other.